Home work #2	**Ch 4: 4.3-4.5**	**Wed, 01/18/06**

Ch. 4

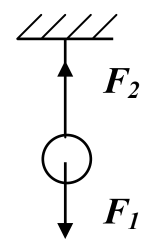
Q11:

No. If now force will affect on the bullet, it will continue to travel with the same velocity (Newton's first law).

Q18:

The mass will be the same. The weight of that mass on the moon will be 1/6 of weight on the earth (F_g = W = mg, m is a mass, g is the acceleration due to gravity).

Q24:



a) $\boldsymbol{F_1}$ is due to gravity, $\boldsymbol{F_2}$ is reaction force

b) These forces are equal and have an opposite directions

E9:

The weight $W = F_g = mg$ = (40 kg) (9.8 m/s^2) = 392 N

E10:

The mass $m = W/g$ = (540 N)/ (9.8 m/s^2) = 55.1 kg

E15:

A 5-kg rock due to the gravitation experiences the force:

$F_g = mg$ = (5 kg) (9.8 m/s^2) = 49 N. The total net force acting on a rock is:

$F_{net} = ma$ = (5 kg) (7 m/s^2) = 35 N. The force of air resistance is:

$F_{air\ res} = F_g - F_{net}$ = 49 N – 35 N = 14 N.

E17:

a) The gravitation force acting on the ball $F_g = mg$ = (1.5 kg) (9.8 m/s^2) = 14.7 N

The net force acting on the ball $F_{net} = F_{up} - F_g$ = 18 N – 14.7 N = 3.3. N

b) The acceleration of the ball is $a = F_{net}/m$ = (3.3 N)/(1.5 kg) = 2.2 m/s^2.

CP4:

a) Yes. $F_g = mg$ = (60 kg) (9.8 m/s^2) = 588 N

$F_{net} = F_g - F_{up}$ = 588 N – 500 N = 88 N

b) $a = F_{tot}/m$ = (88 N)/(60 kg) = 1.467 m/s^2 (down)